

Work Order ID 55132

January 6, 2010 3:50:15 PM

Page 1

Item ID: D212-664-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Fwd

Start Date: 07/01/2010 Start Qty: 1.00

Required Date: 28/01/2010 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan: *BS*

Date: *10-1-06* Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D212-664-141

Rev D

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

5/10/05

LL 10/02/04

110

0.00



Pick Kit

Packaging

Packaging

Memo

0.00

Packaging

IX *uB 10-01-26*

120

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio FT015

IX *uB 10-01-26*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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130

QC15- Crosstube Dimensional Check

0.00



=> 8101126

QC

Memo

0.00



Quality Control

140

Crosstubes

0.00



Crosstubes

Memo

0.00

Crosstubes

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549

2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

MB
10-21-27

AUM 10-1-27

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150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

Chemical Conversion Coat within 24 hours of bending and drilling

/ - - AUM 10-1-28

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

28/01/29

(70)

170

Outsource process - NDT per QSI038 4.1

0.00



Outsource2

Memo

0.00

Outsource process - NDT

Liquid Penetrant Inspection as per QSI 038
Issue P/O: 11290
LPI as per ASTM 1417 Level 2
Attach copy of NDT results to work order

P/10-2-01
(10)

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 	Receive & inspect for Damage & Mat'l Certs	0.00							
Packaging	Packaging								
	Memo	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
190 	QC5- Inspect part completeness to step on W/O	0.00							
QC									
	Memo	0.00							
Quality Control	Inspect for damage & ensure results are as per Dwg D212-664-141								

12/1/2/01 (1)

10 02 02 (1)

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200	Spray Painting per QSI005 4.2	0.00							
	SprayPaint								
	Memo	0.00							
	1-Prime inside and outside crosstube as per QSI 005 4.2								
	2-Paint outside crosstube with White Imron as per QSI 005 4.2								
	PRIME:								
	Start Time: 8:00								
	Finish Time: 9:00								
	PAINT:								
	Start Time: 3:00								
	Finish Time: 4:00								
210	QC14- Inspect Spray Paint	0.00							
									
	Memo	0.00							
	Then, Wrap in plastic bag to protect from scratches								
	Quality Control								

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220 	Crosstubes	0.00				<i>ml</i>	<i>10</i>	<i>02</i>	<i>03 ①</i>
Crosstubes	Memo	0.00							
Crosstubes	1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe 2- install supports with magnobond as per QSI 015 Adhere for 12 Hrs A/R 6398 Magnobond Batch: <i>112417 exp: 01/2011</i> <i>ml 10/02/04</i>								
230 	QC5- Inspect part completeness to step on W/O	0.00		<i>Siolalay</i>		<i>GU</i>			
QC	Memo	0.00							
Quality Control									
240 	Pick Kit	0.00							
Packaging	Memo	0.00							
Packaging									

10-24 54

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250  QC Quality Control	QC4- 100% Inspect kits for completeness Memo	0.00 0.00	S 10/02/05						
260  Packaging Packaging	Packaging Memo Identify and pack for shipping as per PPP D212-664-101	0.00 0.00	REV 12						
270  QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00	10/02/09						

MF 10-2-08

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Picklist Print

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Page 1

Work Order ID: 55132

Parent Item: D212-664-101

Parent Item Name: Crosstube Fwd

Comments: IPP RevH: as per ECN09-696 09.11.19 DD verified by:EC

Start Date: 07/01/2010

Required Date: 28/01/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

D212-664-101TRN Manufactured No

110 Each 3.0000 1.0000



Crosstube Turning Detail

B-54737 MB 10-01-26

Warehouse	Loc Qty	Loc Code
Location		

Main Warehouse

FG	3	
54284	1	
54409	1	
54502	1	

D3595-063-450 Manufactured No

230 Each 180.5477 4.2105



RUBBER CUSHION

Warehouse	Loc Qty	Loc Code
Location		

Main Warehouse

LG	75.5788	
52447	75.5788	
Main Warehouse		
ST	104.9689	
38959	2	
43210	2.59	
46465	0.3789	
53775	100	

ml 10/02/03

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Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21920-25		Purchased	No			220	Each	193.0000	4.0000			

Clamp(per MIL-DTL-8783C)

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	193	
107456	2	
108111	3	
108975	17	
109181	42	
109644	10	
111282	4	
111429	1	
112495	14	
112919	25	
113281	25	
113282	50	

W 10/02/03

W/O:		WORK ORDER CHANGES					
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Start Date: 07/01/2010

Required Date: 28/01/2010


Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Config/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2893-1		Manufactured	No			220	Each	67.0000	2.0000			
												
2.75 Support												

Warehouse	Loc Qty	Loc Code
<u>Location</u>		
Main Warehouse		
ST	67	
25657	6	
47109	2	
47637	11	
51775	19	
53125	19	
53340	10	

m/ 10/02/03

D3428-1		Manufactured	No			240	Each	9.0000	1.0000			
												
Placard												

Warehouse	Loc Qty	Loc Code
<u>Location</u>		
Main Warehouse		
ST096	9	
50790	9	

10-2-24 sp

W/O:		WORK ORDER CHANGES					
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AN6-35A		Purchased	No			240	Each	80.0000	4.0000																							
<div style="display: flex; justify-content: space-between;"> <div>  <p>BOLT</p> </div> <div> <table border="1"> <thead> <tr> <th>Warehouse</th> <th>Location</th> <th>Loc Qty</th> <th>Loc Code</th> </tr> </thead> <tbody> <tr> <td>Main Warehouse</td> <td>ST</td> <td>80</td> <td></td> </tr> <tr> <td></td> <td>112314</td> <td>30</td> <td></td> </tr> <tr> <td></td> <td>112805</td> <td>20</td> <td></td> </tr> <tr> <td></td> <td>113422</td> <td>30</td> <td></td> </tr> </tbody> </table> </div> <div> <p>10-2-4 SP</p> </div> </div>													Warehouse	Location	Loc Qty	Loc Code	Main Warehouse	ST	80			112314	30			112805	20			113422	30	
Warehouse	Location	Loc Qty	Loc Code																													
Main Warehouse	ST	80																														
	112314	30																														
	112805	20																														
	113422	30																														

AN6-36A		Purchased	No			240	Each	115.0000	4.0000																											
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Main Warehouse	ST	115																																		
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Shop Packet Print

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Component Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21042L6		Purchased	No			240	Each	484.0000	6.0000			



Nut

10-2-4 SP

Warehouse	Loc Qty	Loc Code
<u>Location</u>		
Main Warehouse		
ST	484	
105077	22	
110002	5	
111548	8	
111578	400	
112492	49	

AN960JD616

Purchased

No

240

Each

669.0000

18.0000



Washer

10-2-4 SP

Warehouse	Loc Qty	Loc Code
<u>Location</u>		
Main Warehouse		
ST	669	
112314	3	
112828	366	
113149	300	

18

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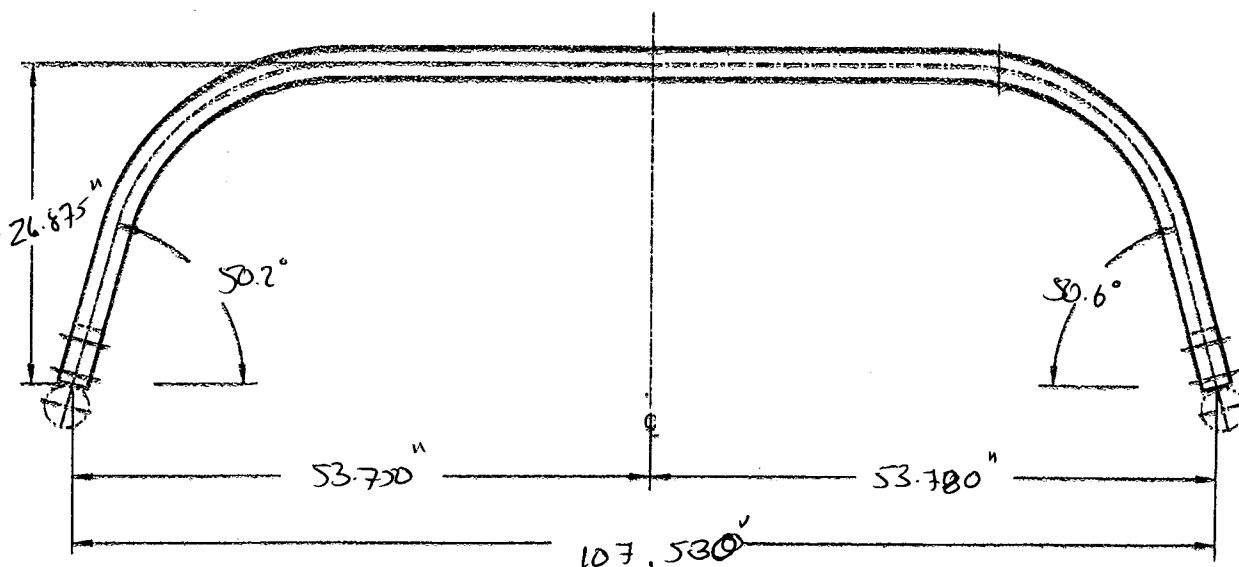
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DART AEROSPACE LTD		Work Order:	55132
Description: Crosatube High Fwd (205/212/412)		Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: 8 D		Page 1 of 1	

R 10.01.26

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



Comments

QC15 Inspection	S
Date	10/6/26

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	

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Item	Qty	Qty	Part Number	Description
	-141	-141		
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/12 IN HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION R80-120-023 ADHESIVE (TEXTRON/SELL SPEC. 292-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 011 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER LIN-D212-664)
D212-664-141B = 33.6 lbs (PER LIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS
6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 036.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF
D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER
INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1
SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE
SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE
SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR
DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND
MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT
HAS NOT BOTTOMED-OUT AFTER TORQUING.

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WITHOUT NOTICE
WORK ORDER
NO. 55132
13110-1-06

RELEASED
2009-10-23
M

D	REFORMAT/REVISE GENERAL NOTES/PART LIST, REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (214 IN HIGH FWD); REMOVED REF & ADD TOLERANCES (214 IN HIGH FWD); RELOCATED FLAG #6 PER PAR 08-046 (214 IN HIGH FWD); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	06.29.03
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATIBILITY WITH BITAA SMOOTHES	PH	05.02.04
A	NEW ISSUE	PH	03.02.12
REV.	DESCRIPTION	BY	DATE
DESIGN	RF		
DRAWN	RF		
CHECKED	RF		
MFG. APPR.	RF		
APPROVED	RF		
DE APPR.	RF		
DATE	09.09.30		

DART AEROSPACE LTD
HAMMERSLEY, ONTARIO, CANADA

DRAWING NO. REV. D
D212-664-141 SHEET 1 OF 4
TITLE SOME
XTUBE ASSY (205/12 IN HIGH FWD) YES

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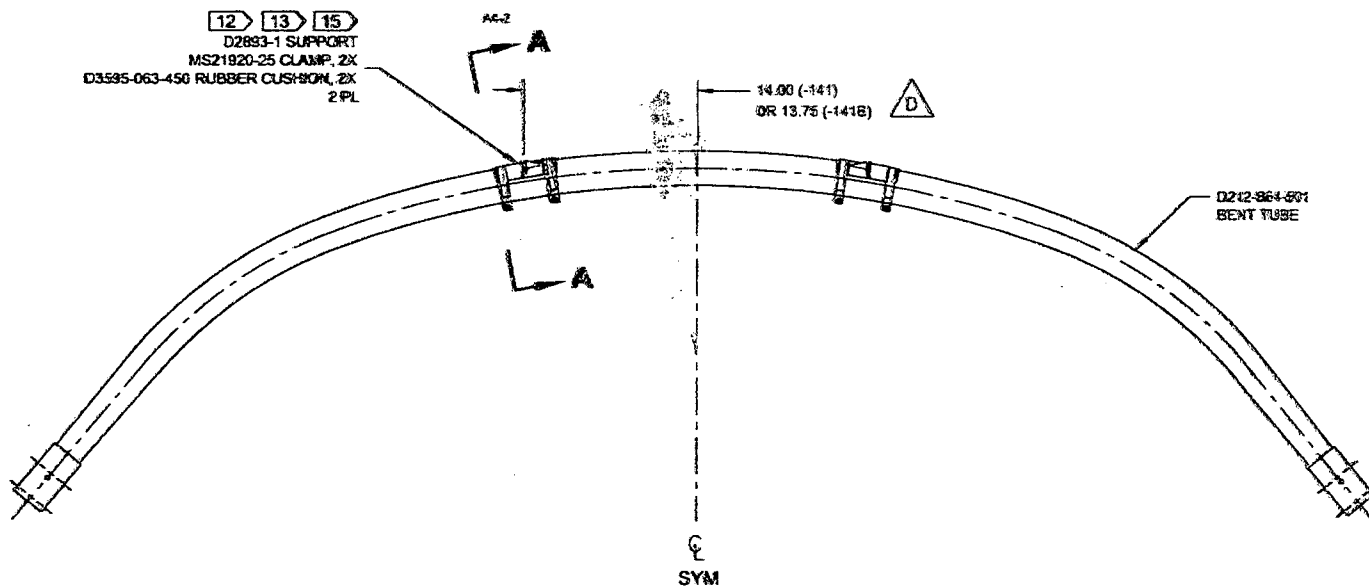
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

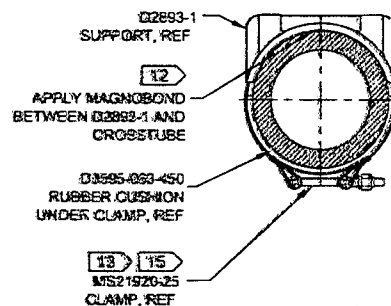
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



**D212-664-141/-141B
ASSEMBLY DETAIL** D



SECTION A-A D5-2
SCALE 4X

RELEASED
2009-10-29

W/0 55132

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DRAWN	RF	HAMMERSBURY, ONTARIO, CANADA	
CHECKED	<i>P</i>	DRAWING NO.	REV. D
MFG. APPR.	<i>B</i>	D212-664-141	SHEET 2 OF 4
APPROVED	<i>AD</i>	TITLE	SCALE
DE APPR.	<i>R</i>	XTUBE ASSY (235/212/412 IN FWD)	
DATE	09.09.30	<small>D212-664-141 © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PROVIDED ON AN "AS IS" BASIS AND IS SUPPLIED ON THE UNDERSTANDING THAT THE USER ASSUMES ALL LIABILITY FOR THE USE OF THIS DOCUMENT WITHOUT WARRANTY OR PERMISSION FROM DART AEROSPACE LTD.</small>	

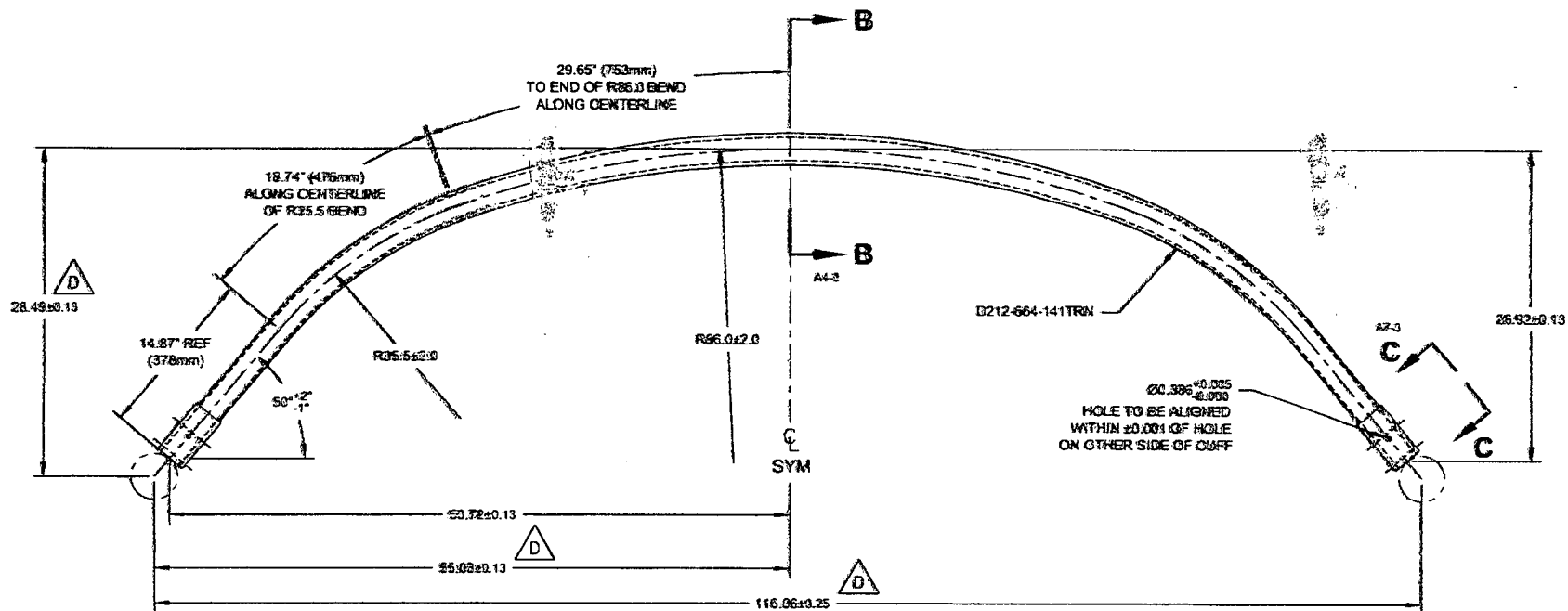
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

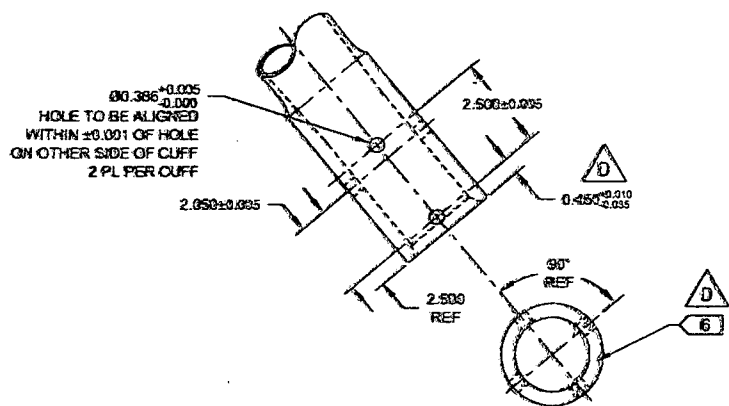
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

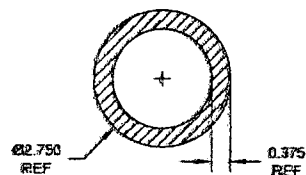
NOTE: Date & initial all entries



D212-664-501
BENDING AND DRILLING DETAIL



VIEW C-C: CLUFF DETAIL
SCALE 3X



SECTION B-B
SCALE 4X

RELEASED
2001-10-29

W/O 55132

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DRAWN	RF	DRAWING NO.	REV. D
CHECKED	Q	D212-664-141	SHEET 3 OF 4
MFG. APPR.	18	TITLE	SCALE
APPROVED	10	XTUBE ASSY (205/212/412 HI FWD)	NITS
DE APPR.	11	COPYRIGHT © 2005 BY DART AEROSPACE LTD	
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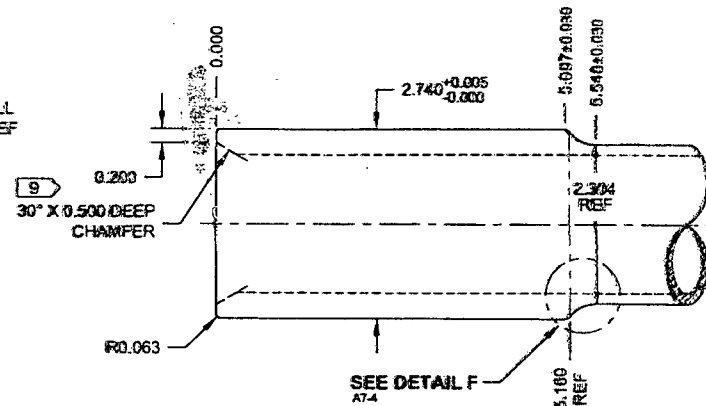
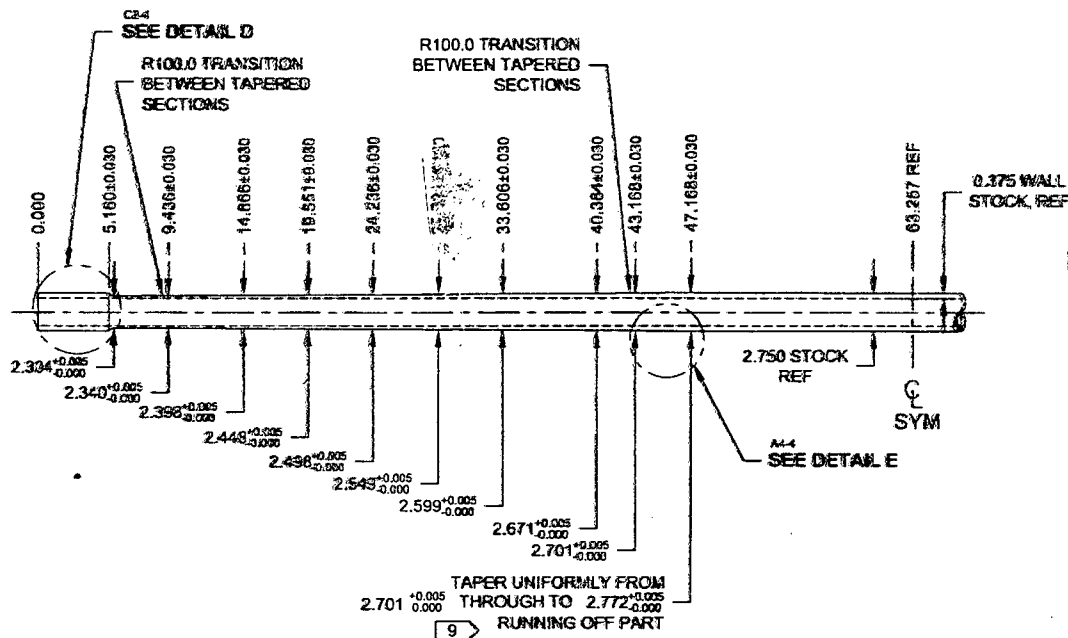
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

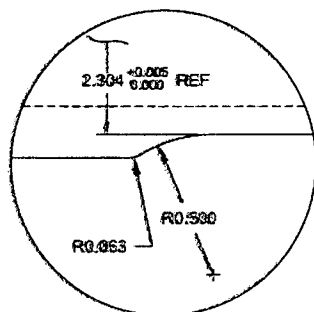
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

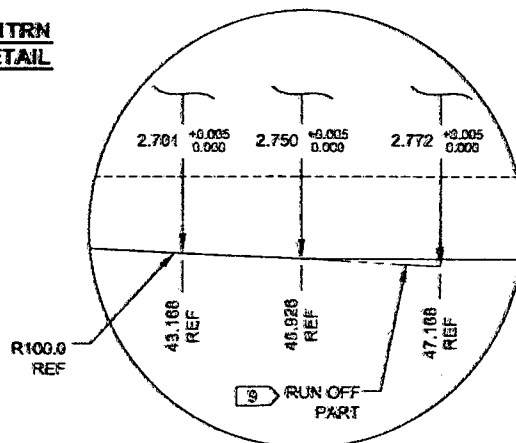


DETAIL D:
 CROSSTUBE CLIFF
 SCALE SX

D212-664-141TRN
 TURNING DETAIL



DETAIL F:
 CLIFF TRANSITION
 SCALE 10X



DETAIL E:
 TAPER RUN-OFF
 NOT TO SCALE

RELEASED
 2008-10-29

u/b 55182

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DRAWN	RF	HARRISBURG, ONTARIO, CANADA	
CHECKED	Q	DRAWING NO.	REV. D
MFG. APPR.	Q	D212-664-141	SHEET 4 OF 4
APPROVED	Q	TITLE	SCALE
DE APPR.	Q	XTUBE ASSY (205/212/412 H/FWD)	NTS
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	-101	-201	-203	Part Number	Description
	X			D212-664-101	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
		X		D212-664-201	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
			X	D412-664-203	CROSSTUBE INSTALLATION, 412 HIGH AFT
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
3			1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
31			2	* D2856-600-1009	ABRASION STRIP
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
50	1	1		D3428-1	PLACARD

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE
NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AA
SKIDTUBES.



LIQUID PENETRANT TEST REPORT

P- 15316

CLIENT DAV Aerospace DATE FEB 1-2010 PAGE 1 OF 1
ATTENTION LINDA ACUREN JOB No. 183-10-0650 TIME AM ☒ PM ☐
ADDRESS 1270 ABERDEEN ST. PO/WO No. 11290
HAWKESBURY ON. WORK LOCATION HAWKESBURY -
K6H 1K7 ACCEPTANCE STD. ASTM 1417 REV./DATE 2007
PROJECT F.P.I. ON CROSS TUBES
ITEM(S) EXAMINED (12) SLEEVES

JOB DESCRIPTION STAINLESS STEEL PROCEDURE No. LT602 REV./DATE LT602 TECHNIQUE No. LT602 REV./DATE LT602
PART No. STAINLESS STEEL MATERIAL ALUMINE ALUMINUM THICKNESS ---
SCOPE WET FLUORESCENT LIQUID PENETRANT INSPECTION
CARRIED OUT 100% EXTERNAL

TEST DETAILS
METHOD ☒ FLUORESCENT ☐ VISIBLE
FAMILY BRAND MAGNAFLUX
PENETRANT 2L 6F MINIMUM DWELL TIME 45 MIN. ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. BLACK LIGHT S/N 16459 OUTPUT >1000 μ W/cm² ☐ AMBIENT <2 fc
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT >100 fc @ SURFACE
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY OTHER LABNO
LIGHT METER S/N 1078866 CAL DUE DATE MAY 7 2010

TEST SURFACE
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☐ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☐ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F
RESULTS- ☐ METRIC ☐ IMPERIAL

12 SLEEVES - W.O. 55-638 ✓
1 CROSS TUBE - W.O. 55132 ✓
1 CROSS TUBE - W.O. 55133 ✓
1 CROSS TUBE - W.O. 55406 ✓
1 CROSS TUBE - W.O. 55404 ✓
20 COLLECTIVE BELL CRANK - W.O. 53635 ✓
1 MOUNT - W.O. 55097 ✓
1 CROSS TUBE - W.O. 55433 ✓
1 CROSS TUBE - W.O. 55434 ✓

ALL ITEMS EXAMINED ON THIS
REPORT WERE FOUND ACCEPTABLE
TO THIS STANDARD.

MW 10/02/02

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.
Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES
CLIENT REPRESENTATIVE MATTHEW MURDOCH DTR # E-27697
TECHNICIAN (SIGNATURE): Mike Johnston SIGNATURE
NAME (PRINT): Mike Johnston REPORT REVIEWED BY:
CGSB LEVEL I SNT LEVEL I CGSB LEVEL --- SNT LEVEL ---
CGSB REG. No. 6606 CGSB REG. No. ---

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